

## Bioretention Cell – Public ROW Construction Inspection Checklist

Project Name and Plan No. \_\_\_\_\_

Project Street/Location \_\_\_\_\_

Contractor \_\_\_\_\_

Date Construction Started \_\_\_\_\_

Status of Materials Submittals and Approvals \_\_\_\_\_

This checklist is based on the bioretention design and construction requirements. It is intended to highlight items critical to the performance of a bioretention facility that need to be verified first hand by the City of Seattle (COS) Seattle Public Utility (SPU) construction inspector (Engineer) or a designated representative. Information about the construction provided by checklists, such as this one, and notes will be stored in the project files, to help SPU evaluate performance of the facility over its design life.

**Visit 1: Pre-Bioretention Soil Placement**      **Date:** \_\_\_\_\_ **Inspector:** \_\_\_\_\_

	N/A	Yes	No	SWM/ Spec*	Comment/Action Required with Date
1. CSEC Measures in place prior to construction				Spec 2-03.3(19)A	
<ul style="list-style-type: none"> <li>▪ Adjacent property runoff interceptor (trench drains, berms or other measures used to prevent runoff from entering cell excavation zone) in place and free of significant debris.</li> </ul>					
<ul style="list-style-type: none"> <li>▪ If appropriate, curb cut openings to cell facilities are blocked so stormwater does not enter cells.</li> </ul>					
<ul style="list-style-type: none"> <li>▪ If relevant, adjacent porous pavement protected from construction equipment by silt fences or by plywood and visqueen.</li> </ul>					
<ul style="list-style-type: none"> <li>▪ Public storm drain catch basins downstream from site have CB protection such as sock.</li> </ul>					
<ul style="list-style-type: none"> <li>▪ Stockpiles of backfill materials including, pipe</li> </ul>				Spec 7-	

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bedding, Type 26 and bioretention soils, are protected from contamination and stormwater runoff.				21.3(1)	
2. Water meters and service connections have been relocated to accommodate cell design.				Spec 2-03.3(19)A	
3. Bioretention cell excavation meets detail dimensions on approved drawings				Spec 2-03.3(19)A	
<ul style="list-style-type: none"> <li>▪ No heavy equipment shall operate within cell or earth berm perimeter during construction.</li> </ul>					
<ul style="list-style-type: none"> <li>▪ Excavation within 6-inches of final native soil grade shall not be permitted if standing water is present in cell.</li> </ul>					
<ul style="list-style-type: none"> <li>▪ Modifications of cell dimensions will be approved by Engineer if modification demonstrates to be necessary for tree preservation.</li> </ul>					
<ul style="list-style-type: none"> <li>▪ Depth of cell is sufficient to accommodate the required depth of bioretention soil, mulch and ponding.</li> </ul>					
<ul style="list-style-type: none"> <li>▪ Subgrade soil scarified to a minimum of 2 inches.</li> </ul>					
4. Field change may be required as approved by Engineer if subgrade conditions are not suitable for infiltration where infiltration is intended.				Spec 2-03.3(19)A	
5. Underdrain, if required per design, is in place				Spec 2-03.3(19)A	
<ul style="list-style-type: none"> <li>▪ Prior to placement of Type 26 aggregate, verify that subgrade soil is free of fines. If sediment laden water has entered cell, Contractor shall remove top 3 inches of subgrade soil and replace with material per design.</li> </ul>					
<ul style="list-style-type: none"> <li>▪ If deferring bioretention soil placement to a later date, place filter fabric on top of the Underdrain backfill and cover with 6 inches of soil. This filter fabric &amp; 6 inches of soil is to be removed at later date, prior to bioretention soils placement</li> </ul>					

**Visit 2: Bioretention Soil Placement**

**Date:** \_\_\_\_\_ **Inspector:** \_\_\_\_\_

	N/A	Yes	No	SWM/ Spec*	Comment/Action Required with Date
1. Construction Stormwater and Erosion Control (CSEC) measures are in place and working properly				Spec 2-03.3(19)A	
<ul style="list-style-type: none"> <li>▪ Prior to placement of bioretention soil, verify that subgrade soil is free of fines. If sediment laden water has entered cell, Contractor shall remove top 3 inches of subgrade soil and replace with material per design.</li> </ul>					
<ul style="list-style-type: none"> <li>▪ If underdrain is required, verify top of underdrain backfill material is free of fines. If not free of fines, remove top 6 inches and replace with materials per design.</li> </ul>					
2. Verify bioretention soil is the correct source and mix as approved by the Engineer				Spec 9-14.1(3)	
<ul style="list-style-type: none"> <li>▪ The following submittals have been received and approved by the Engineer or SPU Materials Laboratory, as required:</li> </ul>				Spec 7-21.3(1)A	
<ul style="list-style-type: none"> <li>○ Grain size analysis results of Mineral Aggregate</li> </ul>				Spec 9-03.2(2)	
<ul style="list-style-type: none"> <li>○ Quality analysis results for compost</li> </ul>				Spec 9-14.4(9)	
<ul style="list-style-type: none"> <li>○ 10 gallon sample of mixed bioretention soil (not for approval)</li> </ul>					
<ul style="list-style-type: none"> <li>▪ Bioretention soil is not excessively wet</li> </ul>				Spec 7-21.3(1)	
3. Bioretention soils placed per specifications and contract drawings				Spec 7-21.3(2)	
<ul style="list-style-type: none"> <li>▪ Excavated cell is not frozen or excessively wet or has been subjected to more than ½ inch of precipitation within 48-hrs.</li> </ul>					
<ul style="list-style-type: none"> <li>▪ <b>Landscape Areas</b></li> </ul>					
<ul style="list-style-type: none"> <li>○ Placed loosely</li> </ul>					

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○ Compacted by water saturation, but not by equipment.					
▪ <b>Turf Areas</b>					
○ Placed in loose lifts.					
○ Compacted to 85-90% per ASTM D 1557					
○ If placed within the 2-foot road shoulder, compact to min 90% per ASTM D 1557					
▪ <b>Earth Berm</b>					
○ Compacted to max 85% per ASTM D 1557				Spec 2-03.3(19)B	
▪ Following placement and compaction, verify bioretention soil placed at a uniform depth as specified on drawings					
▪ After placement of bioretention soil, and before planting or mulching, verify that the SPU Materials Laboratory, 707 S. Plummer St, Seattle, telephone 206-386-1236, has been notified to perform an on-site field compaction test.					

**Visit 3: Pre-Mulch/Planting**

**Date:** \_\_\_\_\_ **Inspector:** \_\_\_\_\_

	N/A	Yes	No	SWM/ Spec*	Comment/Action Required with Date
1. CSEC measures in place and working properly				Spec 2-03.3(19)A	
▪ Verify that no sediment laden water has entered cell. If sediment laden water has entered cell, Contractor shall remove top 3 inches of bioretention soil and replace with material per design.					
2. Verify side slopes are at correct slope per drawings, typically 3:1.				SWM 4.4.1.2	

**Visit 4: Post-Mulch/Planting**

**Date:** \_\_\_\_\_ **Inspector:** \_\_\_\_\_

	N/A	Yes	No	SWM/ Spec*	Comment/Action Required with Date
1. CSEC measures in place and working properly				Spec 2-03.3(19)A	
2. Verify that the finished elevation is one (1) inch below walks, curbs, pavements and driveways, unless adjacent to a bermed area					
3. Verify planting type and density per approved drawings					
4. Verify mulch type and depth, typically 3 inches, meets specifications					
5. Verify no sediment accumulation in cell on top of mulch layer					

**Visit 5: Post-Construction/overall site inspection**

**Date:** \_\_\_\_\_ **Inspector:** \_\_\_\_\_

	N/A	Yes	No	SWM/ Spec*	Comment/Action Required with Date
1. Final dimensions and grade (Record Drawings) submitted					
2. Cell area free of sediment accumulation					
3. Cell vegetation thriving					
4. Overall site is stabilized to prevent sediment laden water from entering bioretention cell					
5. If less than 3 months from vegetation planting completion, a schedule for CSEC removal is provided to the Inspector				SWM - App D.16	

\*Indicates the relevant section of the Director's Rule 17-2009, Volume 3 Stormwater Flow Control and Water Quality Treatment Technical Requirements Manual (SWM) or the Standard Specifications (Spec)